(54) Title: METHOD AND APPARATUS FOR TRANSMITTING WATERMARK DATA BITS USING A SPREAD SPECTRUM, AND FOR REGAINING WATERMARK DATA BITS EMBEDDED IN A SPREAD SPECTRUM
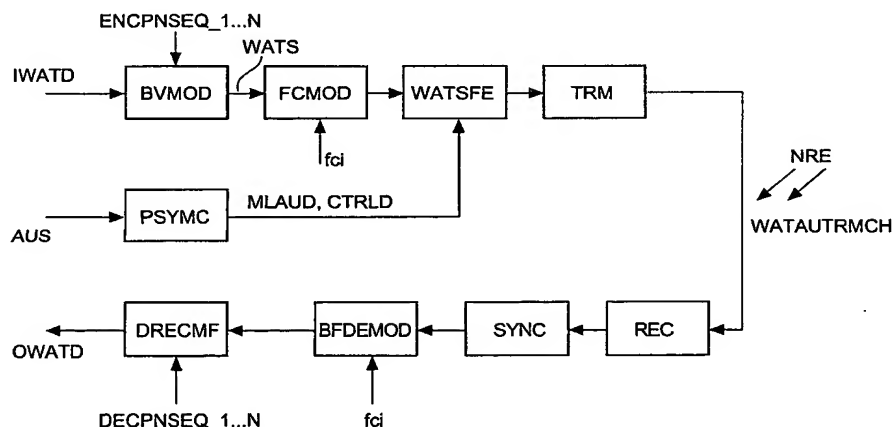
(57) Abstract: Spread spectrum technology and the related inserted or added information signal can be used for implementing watermarking digital audio signals. A known processing for retrieving at receiver or decoder side the watermark signal information bit from the spread spectrum is convolving the received or replayed spectrum with a spreading function that is time-inverse with respect to the original spreading function. The pseudo noise sequences are modulated one or more carrier frequencies which are inserted at one or more frequency bands into the spectrum of an audio signal. The watermark signal decoder checks the frequency bands occupied by such carriers. According to the invention, the frequency band oc-cupation information is signalled in advance, i.e. is transmitted already together with the frame data for the current frame, such that the watermark signal decoder knows before processing the following audio signal frame which carrier frequency or frequencies are occupied and must be used for the corresponding carrier demodulation, and which carrier frequencies need not be checked and demodulated.

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